
NEW EVALUATIONS AND COMPUTATIONAL INFRASTRUCTURE FOR MANAGEMENT AND VISUALIZATION OF NUCLEAR ASTROPHYSICS DATA

Caroline D. Nesaraja¹, Michael S. Smith², Richard A. Meyer³, Daniel W. Bardayan²,
Jeffery C. Blackmon², Kyungyuk Chae⁴, Michael W. Guidry⁴, W. Raphael Hix⁵,
Raymond L. Kozub⁶, Eric J. Lingerfelt⁵, Zhanwen Ma⁴, Jason P. Scott⁵

¹ *Physics Division, Oak Ridge National Laboratory*, and Dept. of Physics & Astronomy,
Univ. of Tennessee*

² *Physics Division, Oak Ridge National Laboratory*

³ *RAME', Inc.*

⁴ *Dept. of Physics & Astronomy, Univ. of Tennessee*

⁵ *Physics Division, Oak Ridge National Laboratory, and Dept. of Physics & Astronomy,
Univ. of Tennessee*

⁶ *Dept. of Physics, Tennessee Technological Univ.*

Recent measurements with radioactive beams at ORNL's Holifield Radioactive Ion Beam Facility (HRIBF) have prompted the evaluation of the structure and reactions of unstable nuclei that play an important role in stellar explosions. We will present the latest results of these evaluation efforts. To determine the astrophysical impact of these evaluations and other new nuclear physics results, it is vital to rapidly and accurately process and incorporate them in astrophysics models. To this end, we are developing a suite of computer programs that simplify and standardize the generation, parameterization, and visualization of reaction rates, and ease their incorporation into databases used for element synthesis calculations. The codes are accessible with a WWW interface through www.nuastrodata.org, a site which also hyperlinks all available nuclear data sets relevant for nuclear astrophysics studies. Features of the program suite and future developments will be presented.

* ORNL is managed by UT-Battelle, LLC, for the U.S. Department of Energy under contract DE-AC05-00OR22725.